Status of the MOS Ground Station at NASA/Wallops

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ABSTRACT

On 27 February 1999, the NASA Sensor Intercomparison and Merger for Biological and Interdisciplinary Oceanic Studies (SIMBIOS) project began operating a receiving station at NASA's Wallops Flight Facility (WFF) to acquire data from the German Modular Optoelectronic Scanner (MOS) onboard the Indian IRS-P3 spacecraft. The data from the Wallops groundstation are processed at NASA's Goddard Space Flight Center, with routine distribution of Level-0 datasets to the German Remote Sensing Data Centre (DLR-DFD). System status and data flow are discussed, as well as plans for Level-2 processing and sensor intercomparison.

1. Introduction

During the last week of February 1999, a team of engineers from the Indian Space Research Organization (ISRO) traveled to Wallops Island, Virginia, USA, to install the hardware and software necessary to acquire and frame MOS data. The system began operations on 27 February 1999, collecting two MOS passes per day. Figure 1 shows the region of coverage over which the IRS-P3 spacecraft is

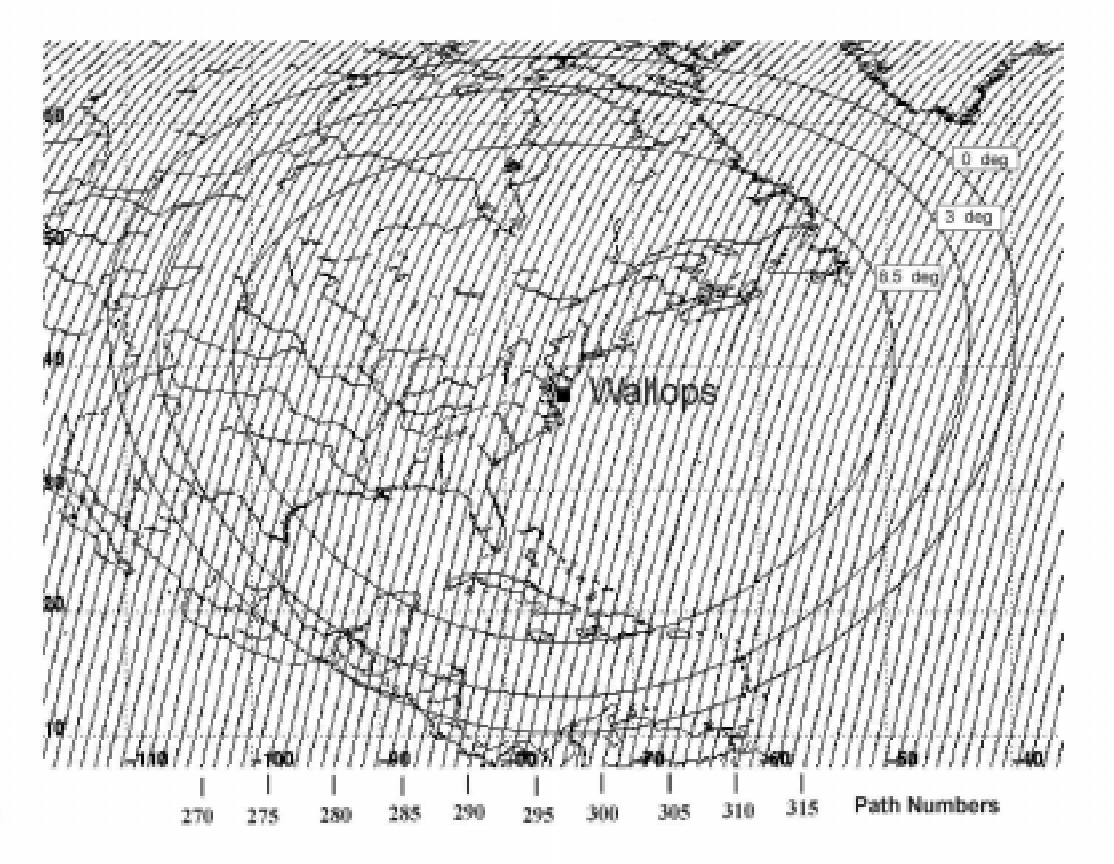

Figure 1: *IRS-P3 visibility map for the Wallops groundstation.*

visible to the Wallops groundstation, with all possible MOS ground tracks superimposed. Coverage limits are shown for antenna elevation minima of 0, 3, and 8.5 degrees. The Wallops station is currently attempting to acquire the spacecraft at 3-deg elevation, but some western passes may be limited by obstructions of up to 8.5-deg elevation.

2. Data Processing and Distribution

Figure 2 shows the overall flow of the MOS data collected at Wallops. Once the pass is acquired by the ISRO PC, the raw files are transferred to the SIMBIOS project at NASA's Goddard Space Flight Center via an automated FTP process. The

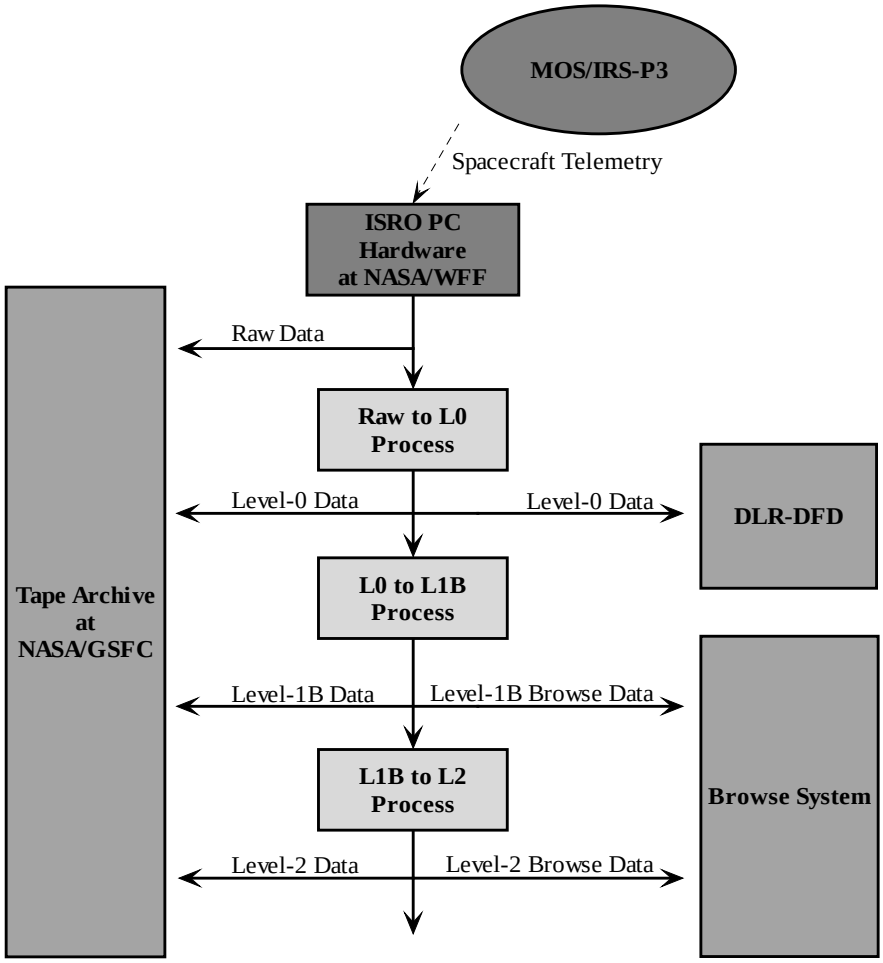

Figure 2: *MOS data processing stream.*

raw files are then converted to Level-0 format through a software package provided by ISRO. Unfortunately, the Level-0 software requires human intervention, which limits full automation and adds some delay to the processing stream. The resulting Level-0 files are made available to DLR-DFD for further processing and distribution.

Once initial validation is complete, the standard distribution mechanism for the MOS/Wallops data will be the Intelligent Satellite Data Information System (ISIS) of DLR-DFD, which can be found through the MOS project webpage at http://www.ba.dlr.de/NE-WS/ws5/. In parallel, the SIMBIOS project is processing the data through Level-1B using the standard software provided by the German Institute for Space Sensor Technology (DLR-ISST) (Neumann et al., 1995). All data

processed by the SIMBIOS project will be made available on a limited-time basis through the MOS browse system at http://simbios.gsfc.nasa.gov/.

The Level-1B data will be processed to Level-2 using a SIMBIOS-developed software package which applies the standard SeaWiFS algorithms of Gordon and Wang (Gordon and Wang, 1994). This software, which is currently capable of processing data from SeaWiFS, MOS, OCTS, and Polder using identical algorithms, has been applied in previous studies of MOS-SeaWiFS cross-calibration (Wang and Franz, 1999). Future work will focus on calibration stability analyses and exploitation of the differences in SeaWiFS and MOS viewing geometries to analyze the performance of atmospheric correction algorithms.

3. Summary

The addition of a MOS groundstation at NASA's Wallops Flight Facility adds value to the MOS sensor through increased geographic coverage. In addition, it increases the opportunities for locating clear scenes of near-contemporaneous MOS and SeaWiFS imagery. This data will be used by the SIMBIOS project for cross-calibration studies, atmospheric correction and bio-optical algorithm development, and data merger studies, and it will be made freely available to the public in accordance with the data distribution policies of DLR-ISST.

The direct participation of the SIMBIOS project in the MOS project helps to foster international collaborations that can only serve to enhance the quality and consistency of future ocean color products.

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References

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